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CERTAIN SHELL HEAPS OF THE ST. JOHN'S RIVER, FLORIDA, HITHERTO UNEXPLORED.

BY CLARENCE BLOOMFIELD MOORE.

Fifth Paper.

GENERAL CONCLUSIONS.

STONE IN THE SHELL HEAPS.

It will be remembered that the district drained by the St. John's River is destitute of stone; the "rock" of the Indian River, which stream is closely approached by the St. John's near the headwaters of the latter, being a conglomerate entirely unsuitable for the manufacture of piercing or cutting implements.

It will be remembered also that in the shell-heaps of the river, even those giving evidence of greatest antiquity through absence of pottery, through infrequent occurrence of anything denoting the agency of man, and through other indications, implements of stone, though infrequent, have been found at all depths. Professor Wyman was present at the finding at the base of the shell-heap at Horse Landing, (Putman Co.,) of a piece of flint rudely worked, which he pronounced contemporary with the earliest stage of the mound. The writer realizing the importance of this discovery in a shell-heap in which, so far as Professor Wyman's and his own investigations have resulted, no pottery exists, twice visited Horse Landing and made a careful examination of the bluff. The flint in question was found in a section of a shell-heap laid bare by the action of the river, and the writer entertained the idea that the implement was possibly from the talus at the foot of the bluff, in which event the value of the find would have been materially lessened, if not entirely nullified. Fortunately, of all the shell-heaps of the river the composition of that at Horse Landing, most readily lends itself to an accurate estimate of the authenticity of objects found. Unlike the majority of the river shell-heaps, that at Horse Landing does not rise from the level of the water, but is piled upon a bank of sand a number of feet above the river. All debris from the section laid bare falls a distance below the shell deposit, and an implement found embedded at a point in the sand where the shell begins is considerably above the debris from the section, and must, in the writer's opinion, have occupied that position since the foundation of the shell-heap.

During the investigations of the writer, which covered a period of upward of seven months during the years 1892--1893, steam motive power reducing to a minimum time devoted to transit, several hundred excavations were made in upward of eighty localities. But a small number of objects of stone were discovered under conditions positively identifying them as being contemporary with the construction of the heaps; a number entirely disproportionate, one would think, to the amount of material displaced.

Before proceeding to a detailed account of the worked stone found by the writer in the shell-heaps of the St. John's, it may be well to specify the nature of the conditions referred to above. The writer has had occasion to state in previous papers of this series that the shell-heaps were occupied as a place of residence by later Indians, and that some at least were cultivated by them. The maximum depth of a furrow in a shell-heap is eight inches, and it is probable that the rude implements of the Indians went no deeper. Allowing ten inches as a maximum deposit of surface loam since the final abandonment of the mound, a depth of eighteen inches is arrived at, lower than which it is necessary to go to insure a satisfactory identification as to the period to which any implement belongs.

If, however, sweet oranges are growing upon the shell-heap it is necessary that even a greater depth be attained. It is believed that the sour orange trees, so numerous upon many of the shell-heaps, are descended from sweet trees run wild, planted by later Indians from seed furnished by the Spaniards. Be this as it may a majority of the shell-heaps north of Lake Harney were until a comparatively recent date thickly covered with a growth of sour orange trees. It has been found in Florida that the most available orange trees are derived from sweet budding upon sour orange stock. After this is accomplished it becomes necessary to place the trees in line and to remove many that no tree may be deprived of sunlight. For the removal of trees and for the " lining " of others, pits three feet in depth are necessary. It is well, therefore, to bear in mind that implements unquestionably of the shell-heaps must be found at a depth greater than three feet in sweet orange groves, and over eighteen inches from the surface in shell deposits not utilized for the cultivation of the orange. The writer, while handling the spade in an orange grove at St. Francis, found at a depth of three feet a thin and beautifully proportioned arrow head, evidently of the time of the later Indians, and conversely he has seen upon the surface in orange groves, arrow points unquestionably of the time of the shell-heaps.

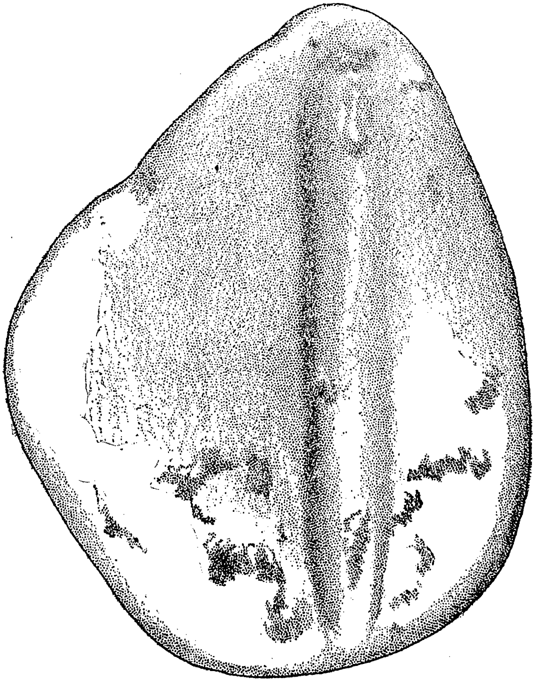

Figure 1.—Grooved Sandstone Hone. (Actual size).

Stone implements known as "sinkers" have never been met with by the writer other than superficially, though hones of sandstone with grooves worn by the friction of pointed tools were contemporary with the later heaps at least. Fig. 1 is from Turtle Mound,[1] Brevard Co.

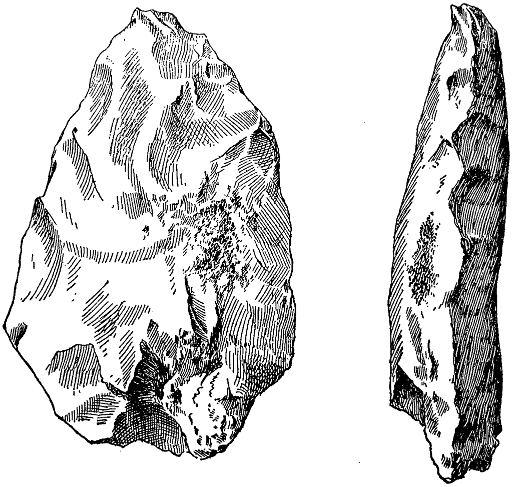

Figure 2.—Arrow Head, Morrison's Creek. (Actual size).

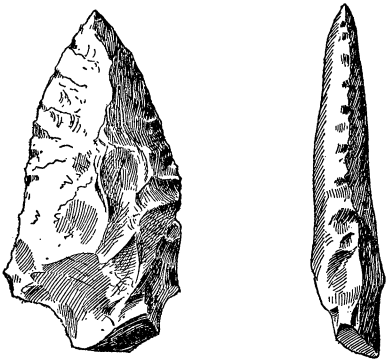

Figure 3.—Arrow Head, Mt. Taylor. (Actual size).

No grooved axes are known to have been found on the river under any circumstances.

[1] Not the great marine shell-heap near New Smyrna.

During the entire investigation of the writer but one implement in any way resembling a chisel or hatchet was brought to light, that could positively be ascribed to the period of the shell-heaps. This was an implement of polished greenstone figured and described in the American Naturalist, August,

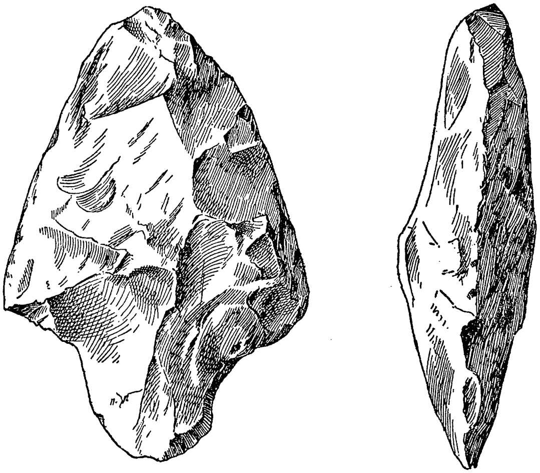

Figure 4.—Arrow Head, Ginn's Grove. (Actual size).

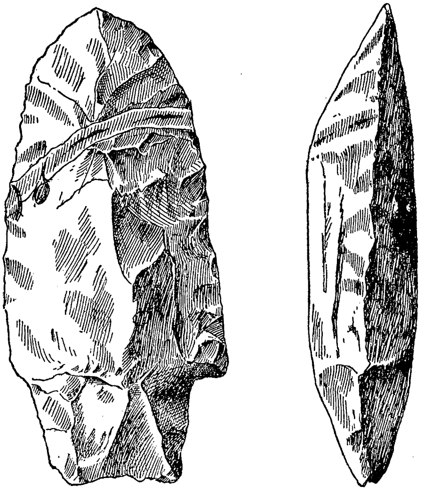

Figure 5.—Arrow Head, St. Francis. (Actual size).

1893. This object, the only one of polished stone known to belong to the epoch of the shell-heaps of the St. John's, was found at a depth of 4½ feet from the surface in Mulberry Mound, Orange County, which is believed to be one of the very latest shell-heaps of the river.

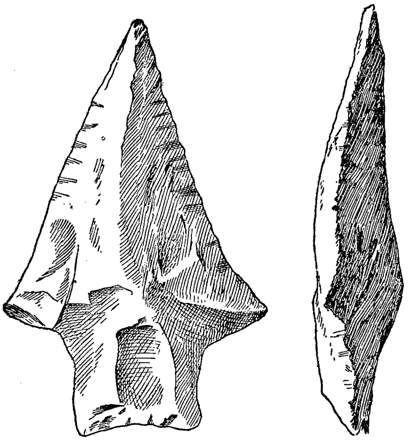

Figure 6.—Arrow Head, shell-heap near Puzzle Lake. (Actual size).

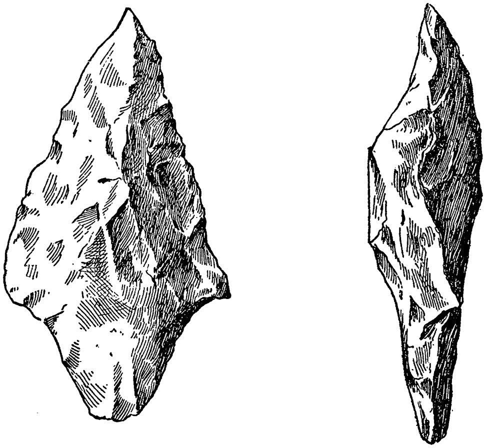

Figure 7.—Arrow Head, Bryson's Mound. (Actual size).

ARROW AND SPEAR POINTS CONTEMPORARY WITH THE SHELL HEAPS.

FOUND IN PLACE BY THE WRITER.

1.—Two arrow heads of chert from the swamp shell-heap near Morrison's Creek, (Volusia Co.,) lying on fire-place four feet eight inches from the surface.[2] Of these, one is figured (Fig. 2). Though carried to a depth of nine and one half feet, this excavation showed no pottery below two feet from the surface.

2.—Two arrow heads of chert and one of chalcedony from the great swamp shell-heap near Volusia, known as Mt. Taylor, (Volusia Co.,) respectively four and one-half (Fig. 3), six and one half and eight feet from the surface. All three lay upon fire-places. A careful search in many parts of this shell-heap showed no pottery whatever.

3.—One arrow head of chert at Ginn's Grove, (Orange Co.,) five miles south of Sanford, at a depth of two feet (Fig. 4). No orange trees grow on this deposit. No pottery found in it, though comparatively abundant in an adjacent shell field.

4.—One arrow head of chalcedony at a depth of six feet on a fire-place in the crescentic shell-heap at St. Francis, (Old Town), (Lake Co.,) (Fig. 5). Many excavations showed no pottery below four and one half feet from the surface.

5.—One arrow head of chert six and one half feet from surface on fire-place in shell-heap west side of Puzzle Lake, (Orange Co.,) (Fig 6). No pottery found below a depth of two feet.

6.—A fragment of spear head of chalcedony at Orange Mound, (Orange Co.,) about twenty-one miles by water south of Lake Harney. Deep and numerous excavations gave no pottery below seven and one half feet.

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[2] It will be seen that a majority of the arrow heads were found immediately upon fire-places, and of the remainder, the writer is unable to state that such was not also the case. With some were the bones of lower animals. It has been suggested to the writer that as it is unlikely that weapons so comparatively scarce as were arrow points at the period of the shell-heaps, should be lost without some reason, the stone points met with by him were thrown on the fire-places buried in the carcasses of animals. This seems a not unlikely hypothesis.

7.—One arrow head of chalcedony in Bryson's Mound, (Volusia Co.,) (Fig. 7). This arrow head was not found when thrown out, but as it lay among material belonging to a stratum not seen within three feet of the surface, its depth may be set down at from three to five and one half feet. Sour orange trees only.

8.—One spear head of bluish chert in the shell-heap on Salt Run, Lake George, (Marion Co.,) at the bottom of the heap three and one half feet from the surface. No pottery found anywhere in this shell-heap below surface loam. No orange trees.

9.—One arrow or spear head of hornstone beveled on both sides 2.34 inches long with maximum thickness of .47 inch, four feet from surface in conical shell-heap in swamp one mile north of Astor, (Lake Co.,) near fireplace. No pottery discovered in this mound beneath surface loam.

10.—Three lance heads about fourteen feet from surface in Mulberry Mound, (Orange Co.). Two of fine chert, thin and of graceful pattern; one of somewhat ruder workmanship fashioned from coarse, yellow chert. These lance points have been described in a previous paper and many reasons adduced why Mulberry Mound must be considered among the very latest of the shell-heaps. Ornamented pottery was found to water level.

As will be seen by the figures, the arrow heads of the presumably earlier shell-heaps are rude in type. They are also characterized by unusual thickness.

Stone implements of the St. John's River are distinctly neolithic, though Professor Wyman in error characterized certain rough specimens found by him as of the St. Acheul type.[3]

The writer has submitted to Professor Haynes a representative collection of rude chipped implements of various sizes, presented to him and reported as coming from the shell-heaps by owners of orange groves and other responsible persons.

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[3] Fresh Water Shell Mounds of the St. John's River, Florida, page 49,

These implements Professor Haynes carefully studied, and writes af them as follows:

"No one of them, in my judgment, resembles the genuine paleolithic implements of western Europe, and I am no believer in any paleolithic period in North America different from that of the old world. By this I mean a time when man was living in some regions as the contemporary of animals, now extinct or migrated to colder countries, like the mammoth and reindeer, and had for his principal tool a type of stone implement peculiar in its shape and method of fabrication and of use. Such implements also show upon their surface characteristic indications of their great antiquity. I think genuine paleolithic implements, so understood, have been discovered in the United States, but yours do not fall within that category, in my opinion, although they somewhat resemble them in shape. But so also do many objects found all over our country which must, nevertheless, be classed as rude, or unfinished Indian implements, although they have been supposed to be like genuine paleolithic implements, by some persons not sufficiently informed upon the subject."

FOOD SUPPLY.

While dredging for specimens of modern shells in the lakes, creeks and lagoons in the neighborhood of the St. John's River, the writer had ample proof that the supply of paludinæ is greater at the present time than has previously been reported. Whole lake bottoms are covered with them, while they are found in abundance in numerous creeks and lagoons. The writer knows by experience that the ampullaria and the paludina make a nourishing and not unpalatable soup. Still it is probable that the aborigines varied their diet to as great an extent as possible. Bones of the dog, the red lynx and a member of the sheepshead family of fish, hitherto unreported as articles of diet, were discovered in shell-heaps by the writer.

It is difficult to arrive at a conclusion in respect to the bison, known to have inhabited Florida within a period of which there is historical record. No bones belonging to this animal were found by Professor Wyman, nor has the writer succeeded in discovering any. A molar, identified by Professor Cope as belonging to a bison, was presented to the writer by Mr. C. H. Curtis of Bluffton, Volusia Co., who stated that it had been superficially found on the shell deposit at that place. It is possible that future investigation will show the bones of the bison to be present in the shell-heaps of the St. John's. Their presence in those of Georgia has been noted.[4]

While the remains of various fish are found in the shell deposits they are by no means so numerous as might be supposed considering their great abundance in the river. The absence at any considerable depth of "sinkers" of stone, believed to have been used for cast-nets, as has been stated, seems to indicate their use as confined to the close of the shell-heap period. Nothing in any way suggesting a fish hook has ever been found in the river heaps. It is probable that the main supply of fish was obtained through the medium of the spear, a method known to have been practiced by later Indians.[5]

AGE OF THE SHELL HEAPS.

There seems to be no reason to doubt that a wide divergence in time characterizes the construction of the shell-heaps of the river, and that many were completed before others were begun. Mt. Taylor, Volusia Co., has a maximum height of over 27 feet. Many and considerable excavations made in every part with an adequate force of men have failed to reveal a fragment of pottery beneath the surface loam. The removal of the entire heap (a work of months) could alone afford absolute proof, but the result of repeated excavations is a strong indication of absence of pottery in the mound.

Mulberry Mound near Lake Poinsett, an island shell-heap rising 16 feet above the water level, is composed of crushed shell and sandy loam, showing slow growth beneath the tread of its inhabitants. Ornamented sherds were met with to the very bottom. Colored pottery was found, and an article of personal adornment, while on a preceeding page has been

[4] C. C. Jones "Antiquities of the Southern Indian," page 200.

[5] The writer has found iron fish spears near the surface of the sand mounds.

related how graceful weapons lay near the base—weapons entirely at variance with the pattern of those of presumably older mounds. The men who dropped the first unios on the low marsh where Mulberry Mound now stands, probably came long after the aborigines abandoned Mt. Taylor. One can readily realize, then, that the shell-heaps are by no means contemporary, and that the beginning of the earliest must date from a period comparatively remote, not, so far as any proofs exist, from a time approaching that of the great mammals, but one far antedating the coming of the whites.

Since the appearance of the first paper of this series, the writer has (1893) carefully gone over many shell-heaps included in his first paper, and has added to the list a considerable number from seven localities. With a force of eight men to handle the spades, the writer has in addition carefully examined nearly all the shell-heaps described by Wyman, and in none has he found any indication of intercourse with Europeans, in this result coinciding with the researches of Professor Wyman.

Numerous objects found by those having shell-heaps under cultivation have been described to or inspected by the writer, but in no case has there been any evidence of the discovery of anything suggesting other than the product of unaided aboriginal industry.

History is singularly rich in accounts of the manners and customs of the natives of Florida, beginning at a period not long subsequent to the landing of Columbus. In all these accounts, written with scrupulous regard for detail, there is nothing to indicate the existence of native races so low in the scale of humanity as must have been those who piled up the greater portion of the shell-heaps. We are told by the Knight of Elvas[6] of the superior quality of the pottery of the Southern Indians. We look in vain in the shell-heaps for evidence upon which such an assertion could have been based. In the face of such a mass of negative evidence, unless proof to the contrary be adduced, the shell-heaps must be considered as abandoned in pre-Columbian times.

A point brought forward in the initial paper of this series for the sake of emphasis will be repeated here. In certain shell-heaps at various depths from the surface fragments of pottery, which have gradually been decreasing in number, entirely disappear, indicating, in the writer's opinion, the inception of the manufacture of pottery during the progress of the erection of the heap. The absence of pottery cannot be accounted for under the hypothesis of decay, since no stratum containing partially decayed sherds is met with in any of the river shell-heaps. If the occurrence of shell-heaps devoid of pottery is admitted on the St. John's, and as to this a careful investigation can leave no doubt, it would be difficult to assign a reason for the absence of this necessity of aboriginal life, save ignorance of the method of its manufacture,[7] and assuming this to be the case, there would seem to be no cause why certain shell-heaps should not show by internal evidence the inception of the art.

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[6] Cited by C. C. Jones "Antiquities of the Southern Indians," page 445.

In conclusion, the writer would state as his opinion, that while the shell-heaps of the St. John's have been imperfectly explored, and while many interesting questions still remain unanswered, but little work will be done in connection with them in the near future. The territory to be covered is so vast, and the shell-heaps of the upper river are so inaccessible that one may well hesitate before undertaking an exploration involving so much trouble and expense. Moreover, but little is found in comparison with the vast quantities of debris to be handled, and the relics of the wretched makers of the shell-heaps offer but a poor incentive in comparison to the more alluring results to be attained in other portions of the country.

[7] It has been asserted that the absence of pottery in certain shell-heaps is explainable under the hypothesis that the people frequenting the shell-heaps dwelt there for but a portion of each year and made the earthenware vessels elsewhere. This seems untenable. It matters little where the pottery was made. If possessed by the occupants of the shell-heaps it certainly would be *used* there, for numerous fire-places and broken bones at all depths testify to culinary pursuits. Earthenware is too brittle to allow one for an instant to suppose that numerous vessels would not be broken as they were on so many shell-heaps. Moreover it is difficult to comprehend why some shell-heaps should be marked by the manufacture of earthenware, while others give no evidence of its production. Rude masses of baked clay and in one case a vessel filled with clay unbaked were found by the writer in shell-heaps.

The conclusion seems difficult to escape that where earthenware is not found, its manufacture was unknown.